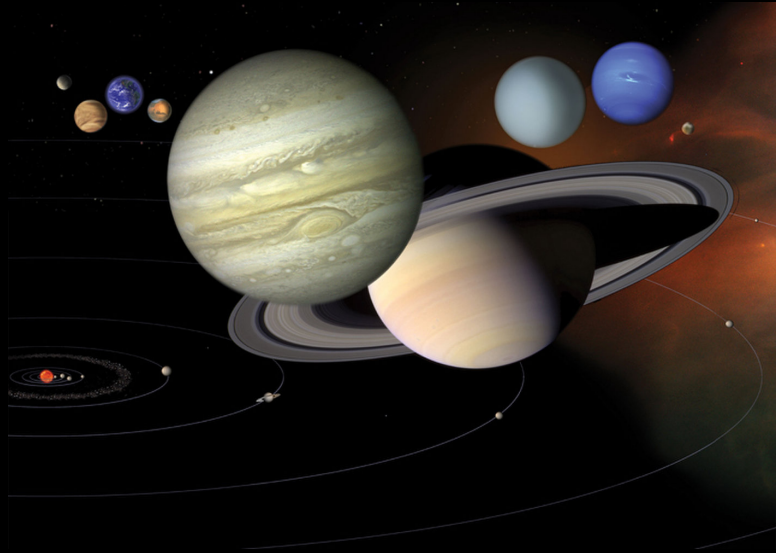
Workshop on Proposal Writing: Using NASA ROSES as an example



Organizer: Christina Richey, Jet Propulsion Laboratory

We appreciate support for this (and other upcoming workshops) from the NASA TWSC Program! Also, thank you to the JPL Foundry for help improving this program!

Jet Propulsion Laboratory
California Institute of Technology

Agenda

1	10:00	Welcome- Introductions	15	Christina
2	10:15	Story 1: Covering the Basics	20	Rolf Danner (The Innovation Foundry, JPL)
3	10:35	Proposal Lifecycle & ROSES	15	Christina
4	10:50	Guidance/Top 10 Tips	60	Christina
5	11:50	BREAK TO GRAB LUNCH	70	Group
6	1:00	Activity #1: Story Telling	45	Christina
7	1:45	Story 2: Know Thy Audience	20	
8	2:05	NASA Review Process	20	Christina
9	2:25	Story 3: The Big Picture	20	
10	2:55	BREAK	15	
11	3:10	Activity #2: Group Peer Review	45	Group
12	3:50	Selection and Understanding Programmatic Balance	20	Christina
13	4:15	Values exercise	20	Group
14	4:30	Wrap Up: What we learned	10	Christina

Logistics

- **Workshop is intended to be interactive**
  - You are encouraged to ask questions, voice opinions and share your experiences
  - Get to know your fellow participants; extend your network!
- **We'd like your feedback as well!**
  - please note anything that strikes you (good or not so good) during the class
  - complete a short questionnaire at the end of the workshop

Please Answer the Following Questions in 30 Seconds or Less

- Your name?
- Your organization?
- How much proposal experience have you had?
  - **Lots**
  - **Some**
  - **None**
- What types of proposals have you worked on?
  - **Mission**
  - **Instrument**
  - **Science/Technology**

- What was/is your most recent proposal?

Story #1:

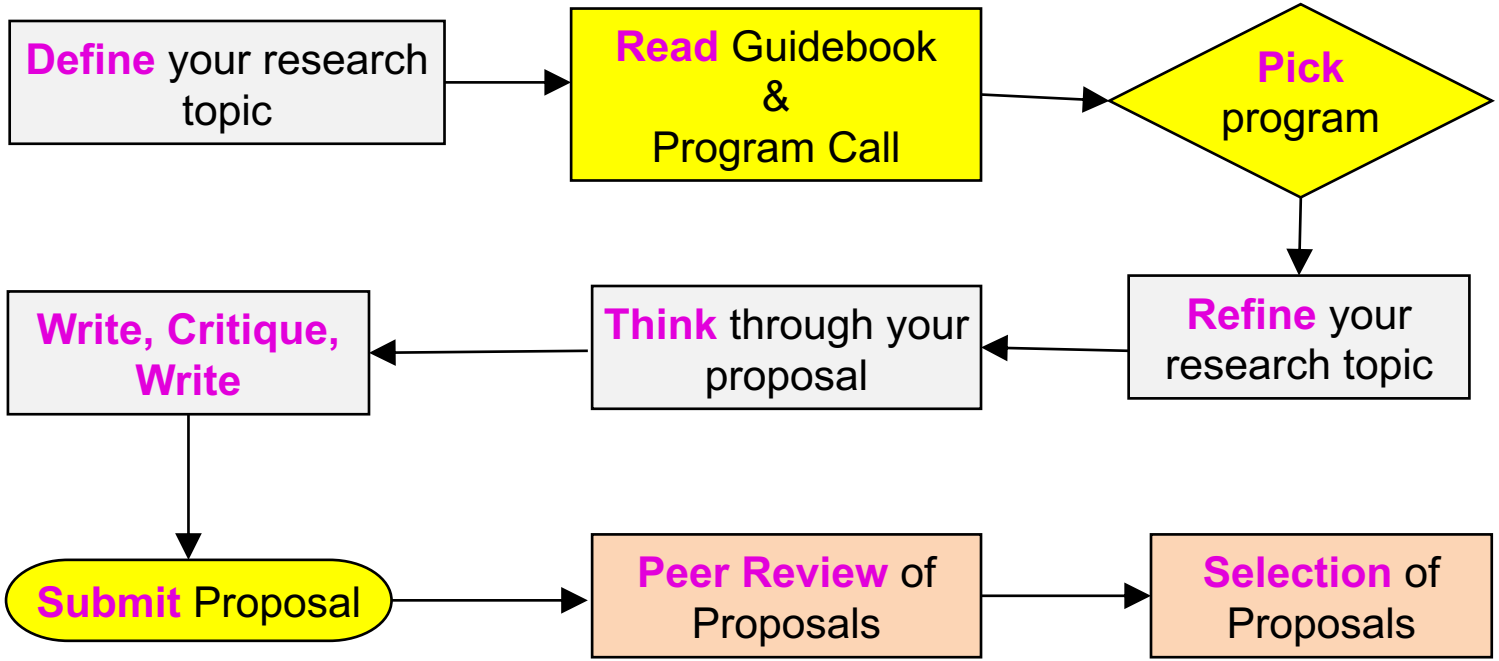
Covering the Basics

Proposal Lifecycle

What does the NASA Science Pot of Money Look Like?

- NASA is the premier funding agency for Earth and Space Science research
  - ~$600M annual R&A budget with >50 R&A programs
  - Each program has anywhere from $1M-$15M available each year
- NASA's science research programs are managed by the Science Mission Directorate (SMD, led by the AA), which has 4 science divisions (led by the DDs)
  - Earth Science, Heliophysics, Astrophysics, and Planetary Science

The Process…ish



ROSES, NSPIRES, and SARA

ROSES: Research Opportunities in Earth and Space Science

All NASA SMD R&A funding is offered through the Research Opportunities in Space and Earth Science (ROSES) NRA*

ROSES is divided into two parts:

1. Summary of Solicitation (SoS): describes the overall opportunity and gives proposal and submission information
2. Appendices: one per division plus cross-division listing all programs

Each Appendix also has an Overview Section!

A. Earth Science
B. Heliophysics
C. Planetary Science
D. Astrophysics
E. Cross-Divisional Programs

Released ~~Mid-February every year~~ **(ROSES19 released on 3/14/19),** and updates are reported constantly!

NSPIRES: NASA Solicitation & Proposal Integrated Review & Evaluation System

- Website is used for proposal submission to NASA R&A Programs and for review
  http://nspires.nasaprs.com/
- Be sure to sign up and get to know this
- Where you can find:
  - ROSES Summary of Solicitation
  - Appendix Overviews
  - Table of deadline
  - **THE PROGRAM YOU INTEND TO SUBMIT TO**
  - Old solicitations and abstracts of selected proposals from previous years

Guidebook for Proposers: Tell you what's required
https://www.hq.nasa.gov/office/procurement/nraguidebook/proposer2018.pdf

NSPIRES: http://nspires.nasaprs.com/

NSPIRES | Solicitations | Help | NASA Web Sites

Login | Create an Account

Welcome to NASA Solicitation and Proposal Integrated Review and Evaluation System

NASA Research Opportunities | Registration Information

Supporting research in science and technology is an important part of NASA's overall mission. NASA solicits this research through the release of various research announcements in a wide range of science and technology disciplines. NASA uses a peer review process to evaluate and select research proposals submitted in response to these research announcements. Researchers can help NASA achieve national research objectives by submitting research proposals and conducting awarded research.

Solicitations

Search for and view open, closed, past, and future NASA research announcements. The full text of the Solicitation Announcements can be viewed and downloaded.

Proposals/NOI Due in the Next 30 days

Title	Number	Released	NOI Due	Prop Due
Appendix C: Development of Microgravity Food Production: Plant Watering, Volume Management, and Novel Plant Research on the International Space Station	NNH18ZTT001N-PT	06/07/2019	--	09/26/2019
Aura Science Team	NNH19ZDA001N-AURAST	03/14/2019	--	09/19/2019
Heliophysics Explorers Program 2019 MIDEX Announcement of Opportunity	NNH19ZDA013O	07/02/2019	--	09/30/2019
Heliophysics Theory, Modeling, and Simulations	NNH19ZDA001N-HTMS	03/14/2019	--	10/03/2019
HERO Appendix A: NASA Research and Technology Development to Support Crew Health and Performance in Space Exploration Missions	80JSC019N0001-FLAGSHIP	07/31/2019	--	09/05/2019
HERO Appendix B: NASA Human Research Program	80JSC019N0001-	07/31/2019	--	09/05/2019

Member Login

Username

Password

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Forgot Password?

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Site News

NASA Grants and Cooperative Agreements Regulations and Guidance

New regulations and guidance has been released.

Continue Reading

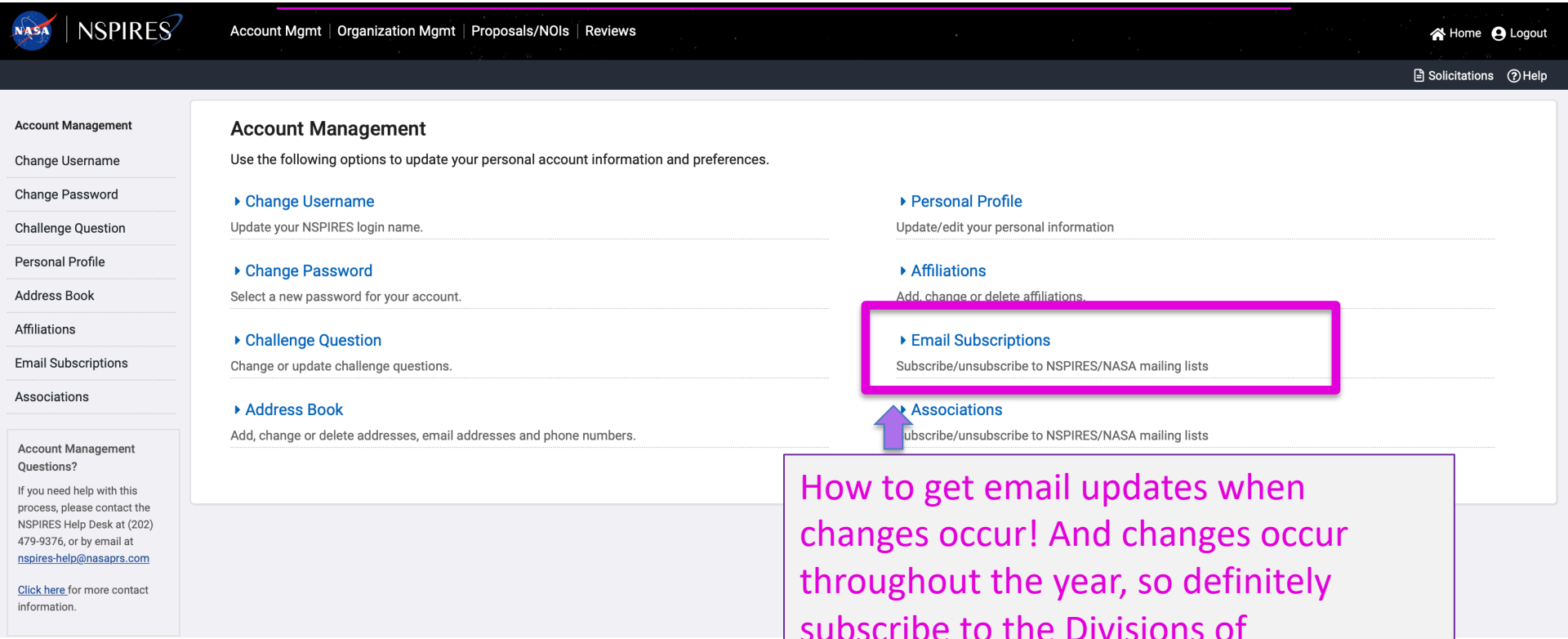
NRA/CAN Proposer's Guidebook

Available online

Continue Reading

Gmail and NSPIRES email

NSPIRES:
http://nspires.nasaprs.com/



How to get email updates when changes occur! And changes occur throughout the year, so definitely subscribe to the Divisions of importance to you!

Science Mission Directorate
NASA Research Announcement

Planetary Instrument Concepts for the Advancement of Solar System Observations

Solicitation: NNH19ZDA001N-PICASSO

Dates

Release	Mar 14, 2019	
PICASSO19 Step-1 Proposals Due	Sep 20, 2019	Create

Due Dates

Planetary Science Division Overview

NSPIRES:
http://nspires.nasaprs.com/

Announcement Documents

- DUE DATES: Table 2 lists and links to all program elements in due date order as amended (.HTML)
- DUE DATES: Table 3 lists and links to all program elements in appendix order as amended (.HTML)
- ROSES-2019 Summary of Solicitation (.PDF) -- common requirements for all programs. Updated July 9, 2019
- Full ROSES-2019 document as clarified and amended September 4, 2019 (.PDF)
- C.1 Planetary Science Research Program Overview (.PDF)
- C.12 Planetary Instrument Concepts for the Advancement of Solar System Observations (.PDF)

ROSES SoS

THE ACTUAL CALL!

Other Documents

- How to create a Step-1 proposal (.PDF)

Program Element Information

- Research Opportunities in Space and Earth Sciences 2019 (ROSES-2019)

Notices

- The description of the specific proposal opportunity on this page is contained in the document 'C.12 Planetary Instrument Concepts for the Advancement of Solar System Observations'. The document 'C.1 Planetary Science Research Program Overview' describes research activities within the NASA science division that is managing the specific proposal opportunity on this page and may impose requirements upon proposals submitted to this program element. The document 'Summary of Solicitation' describes the common requirements for all ROSES-2019 proposal opportunities. The documents 'Table 2' and 'Table 3' contain the list of all proposal opportunities and their due dates, sorted by due date or appendix number, respectively. All of these documents are kept up to date and incorporate amendments, clarifications, and corrections in a clearly identifiable manner.

OK

Science Mission Directorate
NASA Research Announcement

Laboratory Analysis of Returned Samples

Solicitation: NNH18ZDA001N-LARS

Dates

Release	Feb 14, 2018
LARS18 Step-1 Proposals Due	May 24, 2018
LARS18_2 Step-2 Proposals Due	Jul 26, 2018
Selection	Mar 26, 2019

Due Dates

Announcement Documents

- DUE DATES: Table 2 lists all program elements in due date order (.HTML)
- DUE DATES: Table 3 lists all program elements in appendix order (.HTML)
- ROSES 2018 Summary of Solicitation (links corrected October 5, 2018) (.PDF)
- Complete ROSES 2018 NRA as amended and clarified as of May 29, 2019 (.PDF)
- C.1 Planetary Science Research Program Overview (.PDF)
- C.18 Laboratory Analysis of Returned Samples as amended April 10, 2018 (.PDF)

ROSES SoS

Division Overview

THE ACTUAL CALL!

Other Documents

- How to create and submit a Step-2 proposal (.PDF)
- Link to Data Management Plan and Proposed Work Effort templates. See Appendix C.1 for an explanation of their use.
- Planetary Science Division FAQ on Data Management Plans (last updated March 2018) (.PDF)

NSPIRES:
http://nspires.nasaprs.com/

Selections

- Laboratory Analysis of Returned Samples 2018 Selections

Program Element Information

- Research Opportunities in Space and Earth Sciences 2018 (ROSES 2018)

Selections for Closed Programs

Notices

- NOTICE: Amended April 10 2018. The proposal due dates for this program element have been changed. The Step-1 due date is now May 24, 2018 and the Step-2 due date is now July 26, 2018. In addition, Section 2.2.3 has been updated. New text is in bold and deleted text is struck through.
- The description of the specific proposal opportunity on this page is contained in the document 'C.18 Laboratory Analysis of Returned Samples'. The document 'C.1 Planetary Science Research Program Overview' describes research activities within the NASA science division that is managing the specific proposal opportunity on this page and may impose requirements upon proposals

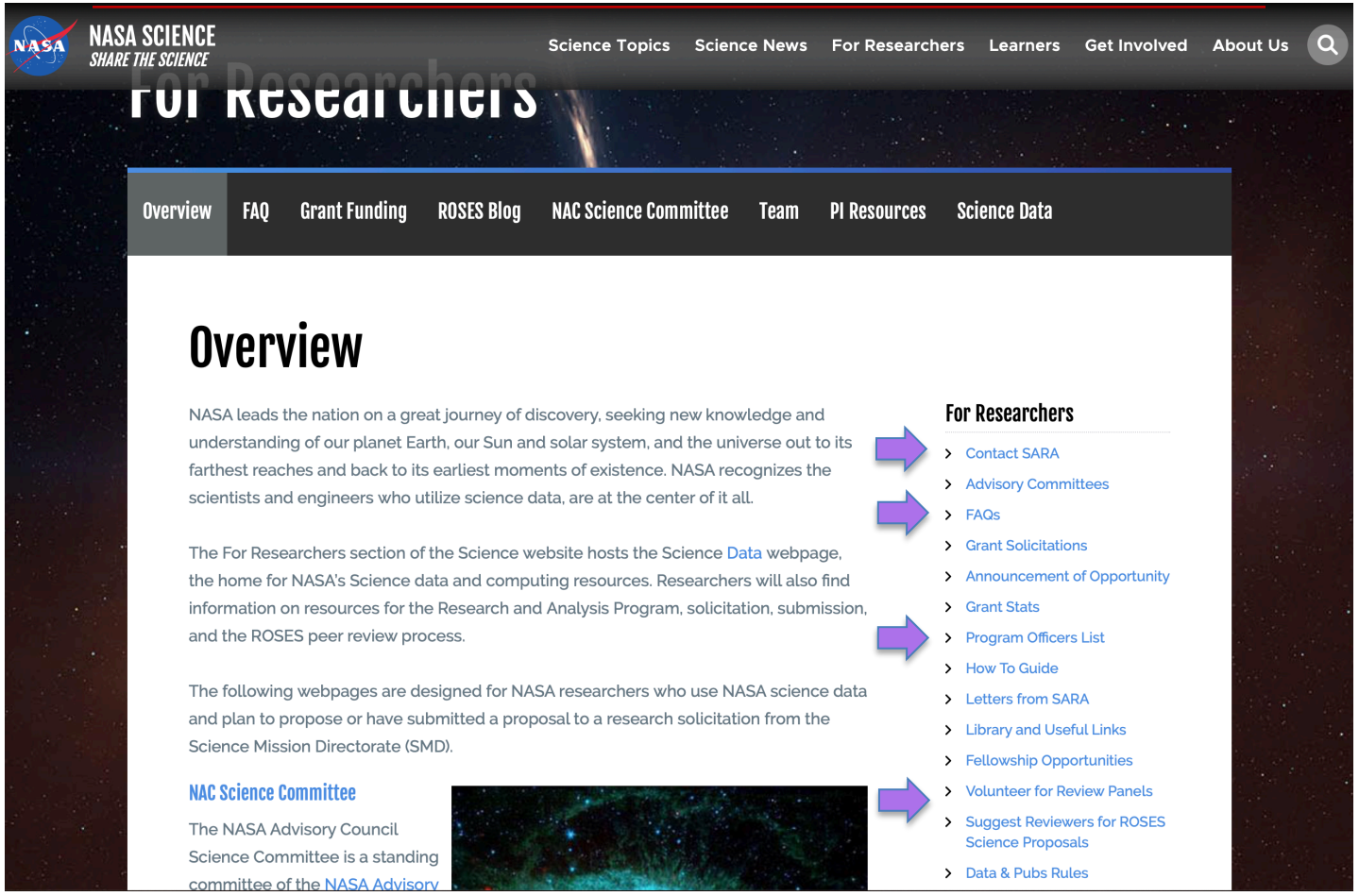
SARA: The Service and Advice for Research and Analysis site

This site is specifically for Research & Analysis in SMD at NASA!

- How to guide
- FAQs (including big changes made yearly)
- NSPIRES Helpful Hints
- Grant Statistics
- Contact information for Program Officers
- Ways to review or to recommend reviewers
- Includes contact information for the R&A Lead for SMD, Max Bernstein: sara@nasa.gov.

https://sara.nasa.gov or https://science.nasa.gov/researchers

The SARA site: https://sara.nasa.gov



Proposal Writing Guidance

Managing Expectations

What will *not* happen:

- You will not write a great piece of literature
- You will not definitively answer the grand question plaguing the community
- Your audience will not review your proposal in a quiet, uninterrupted setting
- Your audience will not be world experts on your topic
- Your audience will not accept your approach without question

What *will* happen:

- You will write a focused, no frills document
- You will answer a focused, well-posed question of limited scope
- Your audience will quickly review your proposal amid the chaos of their own life
- Your audience will be colleagues from similar fields
- Your audience will be skeptical and critical

Managing Expectations

Typical Technical Report Body

1. Introduction
   - Background—what led to research
   - Current state of knowledge—literature review
2. Technical Approach and Methodology
   - What was done and how
   - Research or analysis methods used
3. Results and Discussion
   - Narrative of results
   - Interpretation of results based on facts and theory
   - Discussion of competing theories
4. Conclusion
   - Impact to state of knowledge
   - Expected significance

Typical Proposal Body

1. Objectives, Expected Significance
   - Objectives
   - Expected significance
2. Technical Approach and Methodology
3. Impact to State of Knowledge
4. Relevance to Objectives in Call
5. Work Plan
   - Key milestones
   - Management structure
   - Contributions of PI, other personnel
   - Facilities
   - Risk management (if applicable)
6. Foreign Participation (if applicable)
7. Data Sharing (if applicable)

Know What You're Getting Into…

- Have a vision of work you would like to do
  - Target your work/proposal to the appropriate call—***be responsive***
  - Don't find a call and figure out what to propose—just to get funding
- Proposal writing is a long-term process
  - ***Your reputation*** is made by how well you deliver on every proposal you write and win (or lose)
- Proposal writing involves more than *writing*
  - ***Serve*** on committees (be a reviewer!)
  - ***Chair*** special sessions at meetings
  - ***Publish*** papers
  - ***Work*** with program managers
  - ***Participate*** in and/or convene relevant workshops (and then follow up with a report that can be cited)

Know Your Work's Place in the Grander Scheme…

- **Read** the Call for Proposals carefully
- **Understand** the **programmatic relevance** of your idea
  - What NASA missions will the proposed work make cheaper, better, or possible at all?
  - Use National Academy reports, conference reviews, NASA Strategic Plans, Roadmaps for **guidance**
- **Ask** colleagues, supervisor, etc. for help

Organize Your Work!

- Organization is key!
- Provide clear signposts throughout the proposal

- Use the SARA website: https://science.nasa.gov/researchers/sara/faqs/

Generic Outline vs Official Compliance Outline

1. Title
2. Abstract
3. Introduction
4. Problem Statement and Objectives
5. Science Background and Rationale
6. Technical Approach
7. Expected Outcome/Benefits
8. Education and Public Outreach
9. Management Plan
10. Cost Plan
11. Personnel
12. Facilities
13. Appendices

- NASA ROSES Table 1
- Use this as a checklist for ensuring you have all compliant materials needed to submit your ROSES-2018 proposal.
- Need a hard copy? Check the ROSES Summary of Solicitation (SoS) each year
  - https://nspires.nasaprs.com/external/viewrepositorydocument/cmdocumentid=611943/solicitationId=%7BE2CB9318-72CB-C51A-6962-013E762AE713%7D/viewSolicitationDocument=1/ROSES2018SoSlinksFixed100418.pdf

Title

- Develop an eye-catching title that is descriptive and has key words first

TITLE CONTEST

A Novel Approach to Mapping Atmospheric Ozone

A Low-Cost Laser Occultation Sensor for Precisely Mapping Global Atmospheric Ozone

Precise Mapping of Global Atmospheric Ozone: A Low-Cost Laser Occultation Sensor

Which one do you think is a good title?

Title

- Develop an eye-catching title that is descriptive and has key words first
  - Titles are often cut off so they fit into a smaller amount of space

TITLE CONTEST

A Novel Approach to Mapping Atmospheric Ozone

A Low-Cost Laser Occultation Sensor for Precisely ~~Mapping Global Atmospheric Ozone~~

Precise Mapping of Global Atmospheric Ozone: ~~A Low-Cost Laser Occultation Sensor~~

Which one do you think is a good title?

Abstract

- Will be the first thing read
- **May be the only thing read** (particularly by the final selector)
- Should succinctly frame and distill the proposal
  - State the problem
  - Summarize the solution
  - Summarize the benefits
  - Show how the work relates to the call
  - Give the time frame
  - Mention the team and qualifications
- Write it expansively, then cut it down
- **Remember Step-1 -> Step-2 edits**

Introduction

- Shape it as an extended abstract, a guide and roadmap to the rest of the proposal
- **Emphasize clarity, readability, absence of jargon**
- Demonstrate your grasp of the field
  - Offer a short, well-researched overview of relevant science and technology, as well as current practice…**state of the art**
  - Cite key references
- Include 1–2 figures showing state of the art and **how you will advance it**
  - When reviewer is arguing on your behalf, they can jump to a compelling figure

Problem Statement and Objective

Clearly define the problem and continuously reference back to it, and **box this in!**

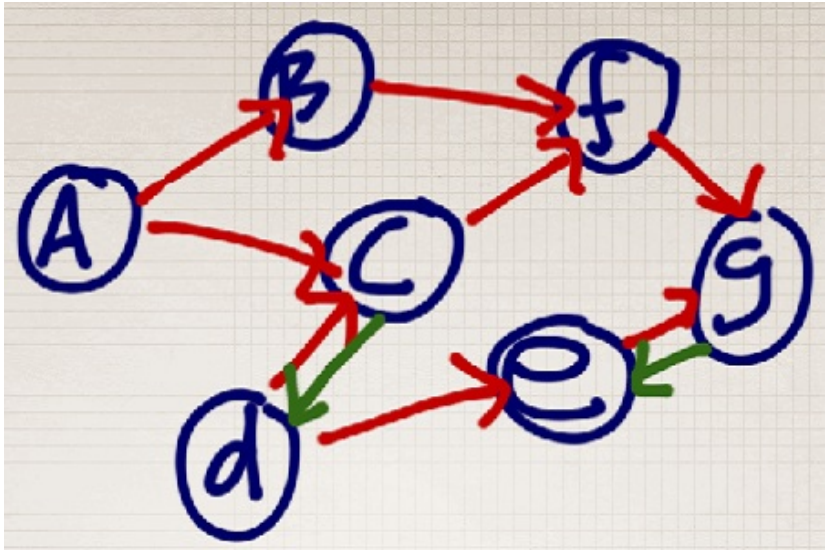
Goal: The broad interest/theme that your proposal will focus on

Objective: The actual question you can answer with the data at hand, which will bring you closer to the goal

Task: The work required to get the data in hand to answer you key objective(s)

Every proposed action should be **traceable** to the stated objective!

Acquiring more data is never an objective, nor is it a goal.



Science Background and Rationale

- Cite sponsor strategic plan or similar document, if possible
- Address their issues directly and concisely
- Show easy familiarity with issues
- Don’t write a dissertation or science paper

General Guidance

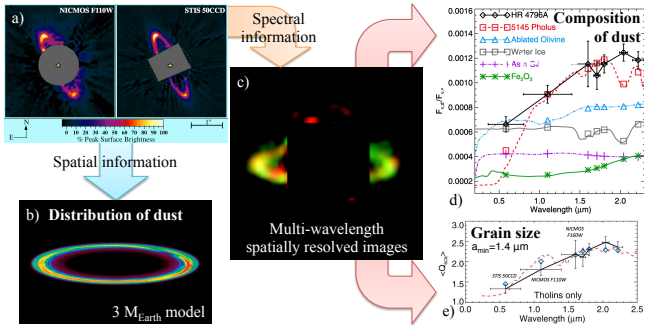
- Thoroughly review and cite the relevant literature
- Avoid full pages of text
- Accentuate the positive
  - Avoid creating the rabbit hole for reviewers to fall down
- Be clear and explicit.
- Highlight your strengths and explain how you intend to mitigate your weaknesses
- Define acronyms and unfamiliar technical terms on first use

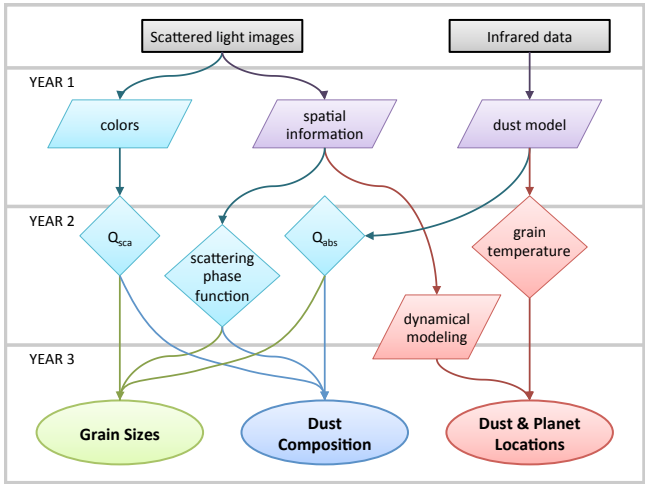
- **RUN SPELL-CEHCK**
  - Proof-read to avoid irritating your reviewer

Captions are read before detailed text. Use graphics and figures effectively for impact.

Visualizing Success

- Use figures, tables, diagrams, and other visual aids to help shape your proposal and guide the reader.





Images courtesy of Hannah Jang-Condell (University of Wyoming)

Fonts Mater

- Here's a paragraph of random, useless words. **The words are not the point**, the point is readability. And not just easier ***for you to read***, but easiest for your **reviewers to read**. *The more complicated your paragraph, the more you request the reviewer's brain to process the words before they process the content* and meaning behind those words. Do yourself a favor, ***and make the content,*** and the meaning, easier to get to.

- Here's a paragraph of random, useless words. **The words are not the point, the point is readability.** And not just easier for you to read, but easiest for your reviewers to read. *The more complicated your paragraph, the more you request the reviewer's brain to process the words before they process the content and meaning behind those words.* Do yourself a favor, and make the content, and the meaning, easier to get to.

Fonts Mater (Continued)

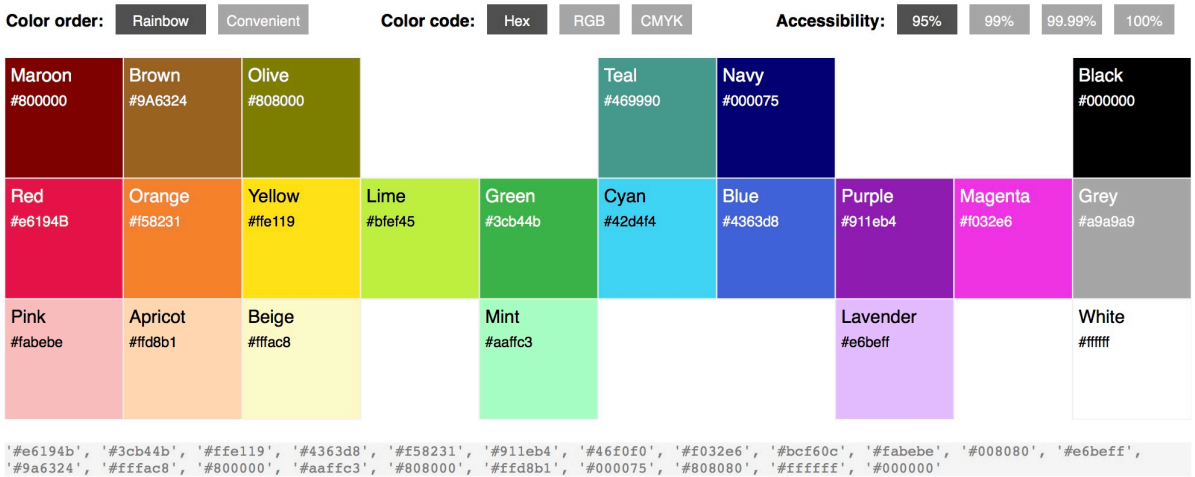
- Know thy audience: 10% of the world population and 15% of STEM populations have dyslexia. Mono spaced (Courier) and Sans Serif fonts (Verdana, Arial, Calibri) are easiest to read, whereas serif Fonts (Times New Roman) and fancy fonts (*whatever this is*) are the hardest. Italic serif fonts (like this one in *Time New Roman*) are all but impossible.

- Use Sans Serif fonts whenever possible!
- If you MUST switch to italics, switch to sans serif fonts italics (like *Calibri*).
- Use a different font for your captions of figures and box the figure in.
- Also bold an entire sentence. And if you need to highlight two things in one paragraph, use colors to your advantage (next slide)

- For more info: http://dyslexiahelp.umich.edu/sites/default/files/good_fonts_for_dyslexia_study.pdf

Colors Mater

- Know thy audience: Folks may be colorblind as well, and many of us print documents gray-scaled on black and white printers. Have you made your figures such that they still can be seen in gray scale?

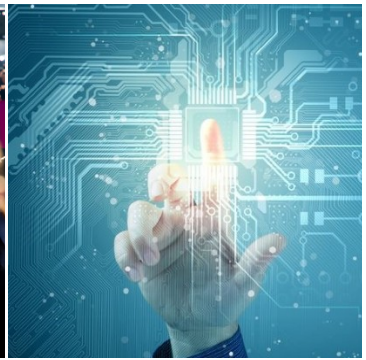


- For more info: https://sashat.me/2017/01/11/list-of-20-simple-distinct-colors/

Expected Outcome/Benefits

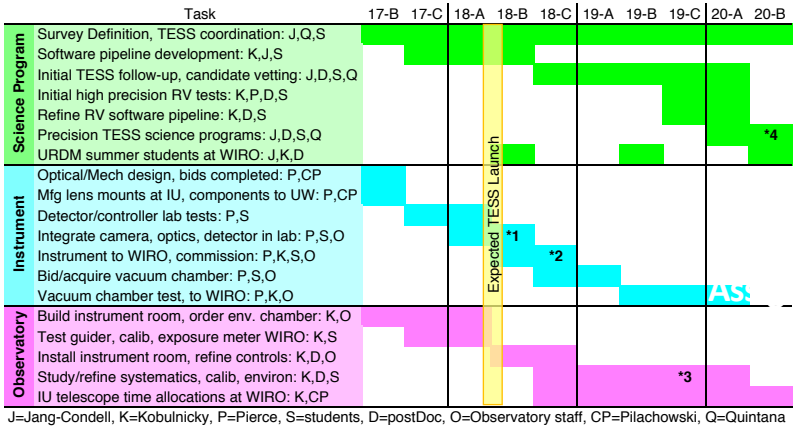
- Relate directly to sponsor mission and directly back to the call as needed!
- Address multiple levels (local, national, strategic)
- Address several categories (scientific, societal, technological, commercial)






Section 9: Personnel and Management Plan

- Justify yourself as PI and defend your selection of Co-Investigators
  - A role for every team member
  - A team member for every role
- Demonstrate excellence; don't just claim it
- Define clear roles and responsibilities, qualifications of key personnel
  - use tables!



Images courtesy of Hannah Jang-Condell (University of Wyoming)

Time and Costs

- Can you do the job on the schedule?
  - Reviewers will be skeptical!
- Can you do the job for the budget?
  - Program Officers will be skeptical!
- Prove it!
  - Provide SPECIFIC intermediate milestones
    - Offer substantial, incremental improvements, e.g.,
      - 8× better detector in three 2× steps every 6 months
      - Measurement of hundreds of galaxies leading to catalog of thousands of galaxies
      - 30 K improvement in detector operating temperature
      - 4×4 focal plane array in 1 year; 16×16 in 3 years
  - Cite record of on-time, on-budget achievement

More on Budgets

- Have a clear budget
  - include detailed budgets for co-I and narrative summary and justification

- Transparency
  - don’t try to sneak things into the budget

- Justify all travel
  - travel? Page charges in Year 1?

- Be sure to justify why this program and, should multiple funding outlets be involved, be exquisitely clear on which part will be funded by each source.
  - Be sure to justify why multiple funding sources are needed

Facilities and Appendices

- Follow Guidebook Instructions
- Keep to the focus of the proposal and don’t try to sneak in new scientific information here
- Do not include Appendices not requested by the solicitation!
- Don’t expect the majority of panelists to read this section.

Overall Proposal Development Advice

- Read the NRA: Are you responsive?
- Demonstrate excellence; don't claim it
- You need a reviewer to champion your proposal
  - Make it easier for them by providing concise material up front
- Read the NRA again
- Examine the selection criteria and directly address them up front
  - A reviewer should be able to lift sentences from your introduction that could go into their review
- **Go back and really read the NRA**
- Proposals lose because of single sentences or paragraphs
  - https://www.lohfeldconsulting.com/news-knowledge/100-words-to-avoid-in-proposals/
  - Get folks to review your work before submitting and use their feedback

Proposal Writing: Mistakes

Ways you can avoid making common proposal mistakes*

-Make sure you have someone edit your work

-Have others review your work, scientifically

-Start as a co-I or student member and learn from others!

-Serve on panels for experience

-NASA ROSES: http://science.nasa.gov/researchers/volunteer-review-panels/

- Please respond as soon as possible
- If you can't travel, let us know that you would be willing to be a virtual panelist
- Offer to serve as an external if needed

These are two different people, with different agendas!

Top 10 Proposal Writing Mistakes

1. You think you know what the reviewer wants
2. You haven't proof-read the entire document
3. You don't think its necessary to have someone else review the proposal before submitting
4. You think your reputation speaks for itself
5. You think the best references are your own
6. You think you don't need to reread the NRA
7. You haven't gone through your checklist to ensure everything is there
8. You think you don't need to state the obvious
9. You think reviewers will read your whole proposal
10. You think you are finished

10b. You think these are the only mistakes that can be made…

BREAK!
Grab Lunch & be back at 1 PM!

Activity #1: Story Telling

Core Science Story

Core Science Story

*A deep structure of **storytelling** that involves six sequential sentences is one way to help you outline your science story:*

1. Once upon a time there was …
2. Every day …
3. One day …
4. Because of that …
5. Because of that …
6. Until finally …

From the boardroom to the playground

Core Science Story

on trust.

Pixar story artist, Emma Coats

Core Science Story

From scientist to stakeholder

1. Once upon a time there was …
2. Every day …

3. One day …

4. Because of that …
5. Because of that …

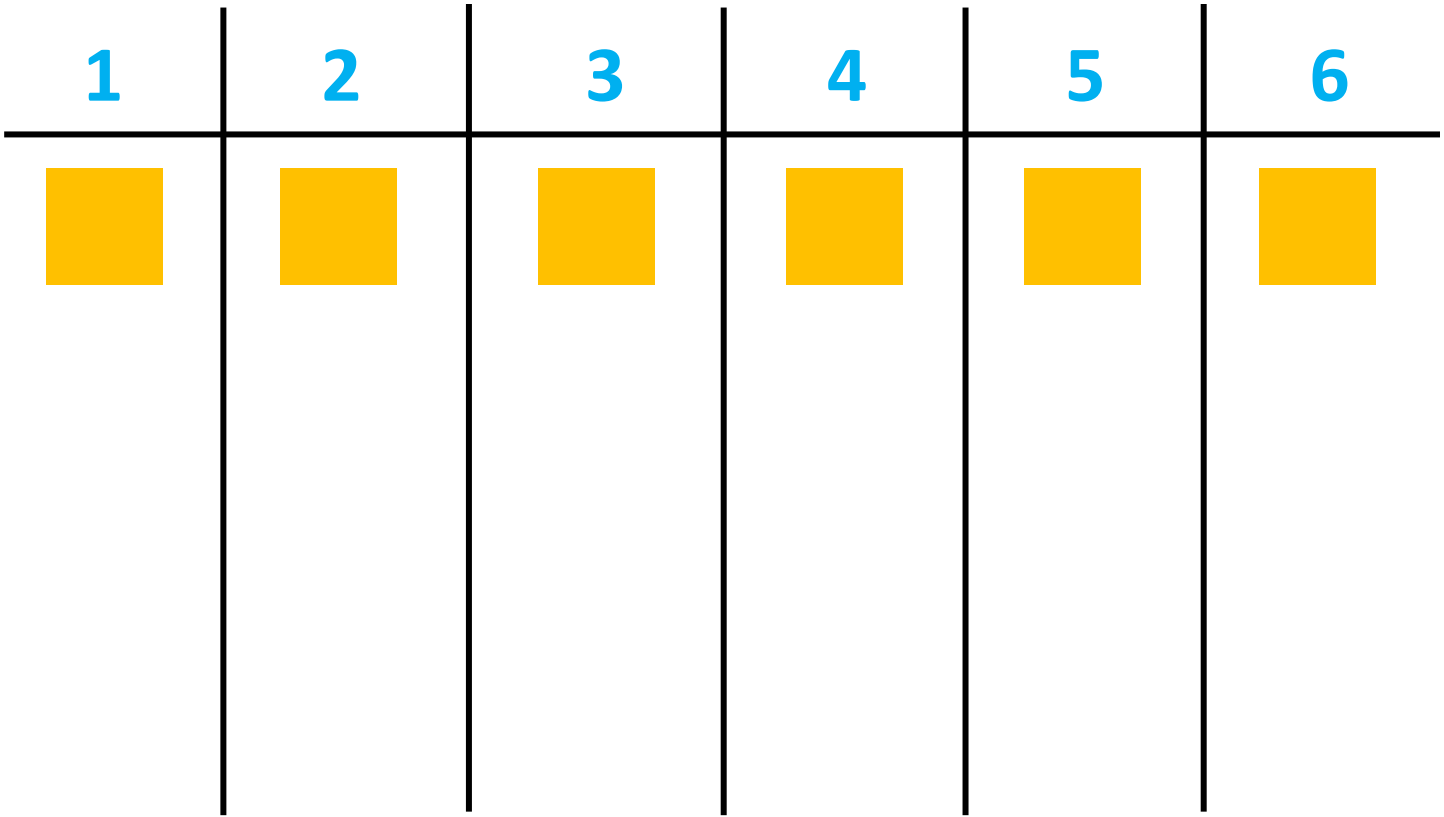
6. Until finally …

Current state-of-the-art

Light Bulb

Advance the state-of-the-art

Applicable "new" knowledge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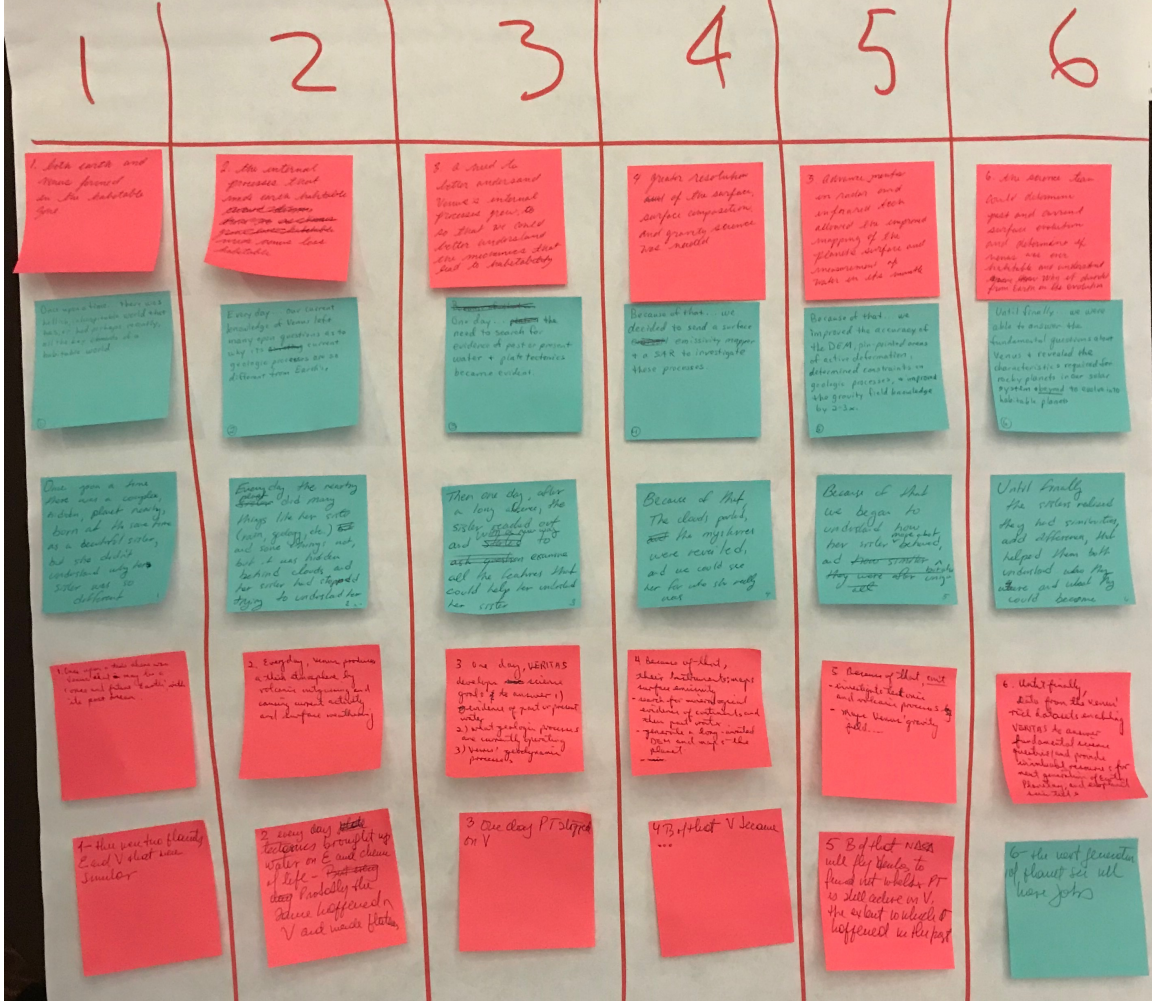
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Core Science Story

From scientist to stakeholder

1. Once upon a time there was …
2. Every day …

3. One day …

4. Because of that …
5. Because of that …

6. Until finally …

Current state-of-the-art

Light Bulb

Advance the state-of-the-art

Applicable "new" knowledge

Story #2: Know Thy Audience

Peer Review

The Basics

Every Proposal has two Audiences

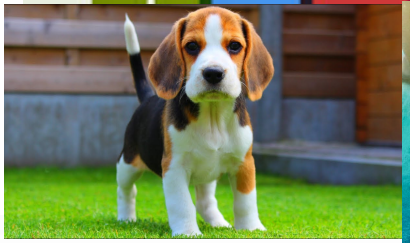
1. **Program Officer, Manager, Point of Contact**
   - Ensures that the work will further the Program's objectives and verifying that funds/time/etc. will be used properly
   - Relies on you writing a **COMPLIANT** proposal

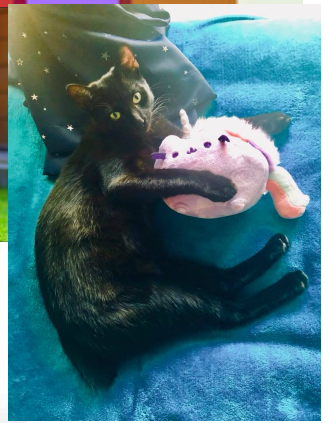
2. **Review Panel**
   - Ensures that the work is of high scientific quality

Your job is to make it as easy as possible for these two audiences to select your proposal

In General…

- The Program Officer/Coordinator chooses panel members from the greater science community
  - Conflicts of interest are avoided
  - ensures all evaluations are fair & unbiased
- Internal & External Reviewers may/may not be used
- Proposals are given a score/assessment, based on strengths & weaknesses of set criteria
- Large panels may be split into sub-panels
  - Plenary sessions may be used to ensure consistency
  - **Dog Show Rule:** Proposals are not to be compared to each other by review panel

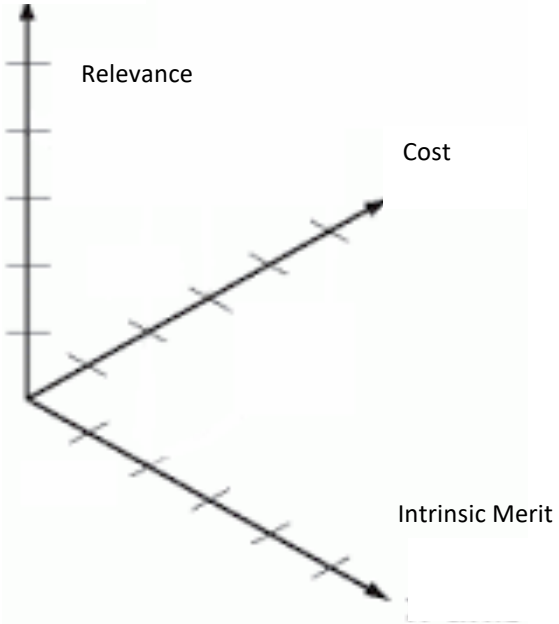




Peer Review for NASA ROSES
The Evaluation Criteria

Criteria are assessed **independently** of one another, and a low rating in any one is cause for non-selection:

1. **Intrinsic Merit:** Science and Technical Merit
2. **Relevance to the Program**
3. **Costs:** Does NOT mean Total $$$



- **Criteria detailed in Guidebook for Proposers.**
- **Additional criteria may be outlined in the specific call!**
- **Look for language "will be judged/reviewed upon".**

Guidebook for Proposers:
https://www.hq.nasa.gov/office/procurement/nraguidebook/proposer2018.pdf

Peer Review
Intrinsic Merit

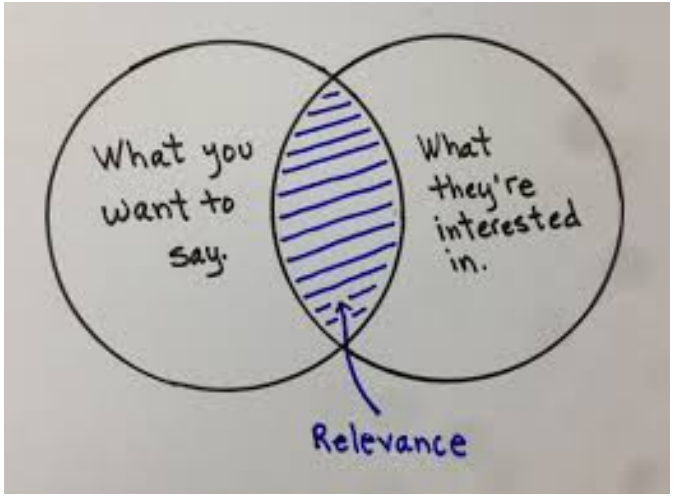
1. The scientific quality of the proposed project, including, but not limited to, the scientific rationale and the expected significance and/or impact of the proposed work.
2. Overall technical quality of the proposed work, including, but not limited to, the quality of the management plan and project timeline for carrying out the work and the effectiveness and resilience of the proposed experimental designs, methods, techniques, and approaches for achieving the proposed goals and/or objectives.
3. The qualifications, capabilities, and related experience of personnel demonstrated by the proposal (e.g., publications, delivered products, and other measures of productivity and/or expertise) that would affect the likelihood of achieving the objectives.
4. Facilities, instruments, equipment and other resources or support systems presented in the proposal that would affect the likelihood of achieving the proposed objectives.

Additional criteria may be found in specific call
Look for language "will be judged/reviewed upon"

Peer Review
Relevance

(judged against the text of the NRA)

1. How effective is the proposal's claim of relevance? Assuming everything works, would the results be relevant to the program?
2. Criterion is a little complicated for most reviewers.
3. The panel evaluates how well the proposal justifies its relevance to NASA & the program
4. The panel's judgment of the relevance of the proposed work, independent from the stated justification, can also be communicated to the Discipline Scientist
5. Importance varies by program — sometimes it's really binary.



Peer Review
Cost

This Does NOT Mean Total $$$

1. Are the resources requested (FTEs, travel $, supplies, etc.) appropriate for the proposed research program? Are the amounts of resources requested realistic given the panelists experiences as researchers? Is the budget clearly described and justified, including all major sub-contracts or sub-awards?
2. "Cost reasonableness" is not really "bang for buck" (you do NOT see salaries or overhead)
3. Reviewers do not evaluate the "bottom line"

The Score

Summary Evaluation	Basis for Summary Evaluation	Relationship of Summary Evaluation to Potential for Selection
Excellent	A thorough, and compelling proposal of exceptional merit that fully responds to the objectives of the FA as documented by numerous or significant strengths and with no major weaknesses.	Top priority for selection in the absence of any issues of funding availability, suspension or debarment, past performance or programmatic priorities.
Very Good	A competent proposal of high merit that fully responds to the objectives of the FA, whose strengths fully out-balance any weaknesses and none of those weaknesses constitute fatal flaws.	Second priority for selection in the absence of any issues of funding availability, suspension or debarment, past performance or programmatic priorities.
Good	A competent proposal that represents a credible response to the FA, whose strengths and weaknesses essentially balance each other.	May be selected as funds permit based on programmatic priorities.
Fair	A proposal that provides a nominal response to the FA but whose weaknesses outweigh any strengths.	Not selectable regardless of the availability of funds or programmatic priorities.
Poor	A seriously flawed proposal having one or more major weaknesses that constitute fatal flaws.	Not selectable regardless of the availability of funds or programmatic priorities.

- Criteria are assessed and the review panel will assign a score to the proposal based off definition from the NRA Guidebook for Proposers.
- **Scores may be assign for IM, Relevance, Cost, and/or Overall.**

Other Issues: Reviewing

- Crying Baby on an Airplane Rule
  - Assume your reviewer is highly distracted when reading your document
- **Things that upset reviewers**
  - Typos
  - Full pages of dense text
  - Lack of clarity and specificity
  - Lack of organization
  - Lack of relevance to the call
  - Your abstract/summary is old and not on the actual topic of the proposal

Story #3: The Bigger Picture

BREAK! Be back in 15 minutes!

Activity #2: Peer Evaluation

Quad Tool

Science Merit

1. The scientific quality of the proposed project, including, but not limited to, the scientific rationale and the expected significance and/or impact of the proposed work.
2. Overall technical quality of the proposed work, including, but not limited to, the quality of the management plan and project timeline and the effectiveness and resilience of the proposed experimental designs, methods, techniques, and approaches for achieving the proposed goals and/or objectives.
3. The qualifications, capabilities, and related experience of personnel demonstrated by the proposal (e.g., publications, delivered products, and other measures of productivity and/or expertise) that would affect the likelihood of success
4. Facilities, instruments, equipment and other resources or support systems presented in the proposal that would affect the likelihood of achieving the proposed objectives.

Relevance

1. How compelling and how well articulated is the argument presented in the proposal for the relevance of the proposed research to the goals stated in the solicitation?
2. Does the proposal demonstrate that it is not responsive to other programs?

Cost

1. Are the resources requested (FTEs, travel and supply costs, etc) reasonable for the scale and type of work proposed?
2. Are the resources requested realistic, given your experience as a researcher?
3. Is the budget clearly described and justified, including all major sub-contractors or sub-awards?

Data Management Plans

1. Description of data types, volume, formats, and standards
2. Description of the schedule for data archiving and sharing
3. Description of intended repositories for the archived data, including mechanisms for public access and distribution
4. Discussion of how the plan enables long-term preservation of data
5. Discussion of roles and responsibilities of team members in accomplishing the Data Management Plan

Red Team
Critiques

What to focus on when critiquing:

1. What Worked
2. What Didn’t Work
3. What Might Work Better
4. Line Edits

What to focus on when receiving critiques:

1. Crave Criticism
2. Don’t Take it Personally
3. Many Versions of True
4. Write Down the Important Bits
5. Don’t Waste the Chance to Learn by Defending

Serving on Panels = Greater Understanding of Peer Review

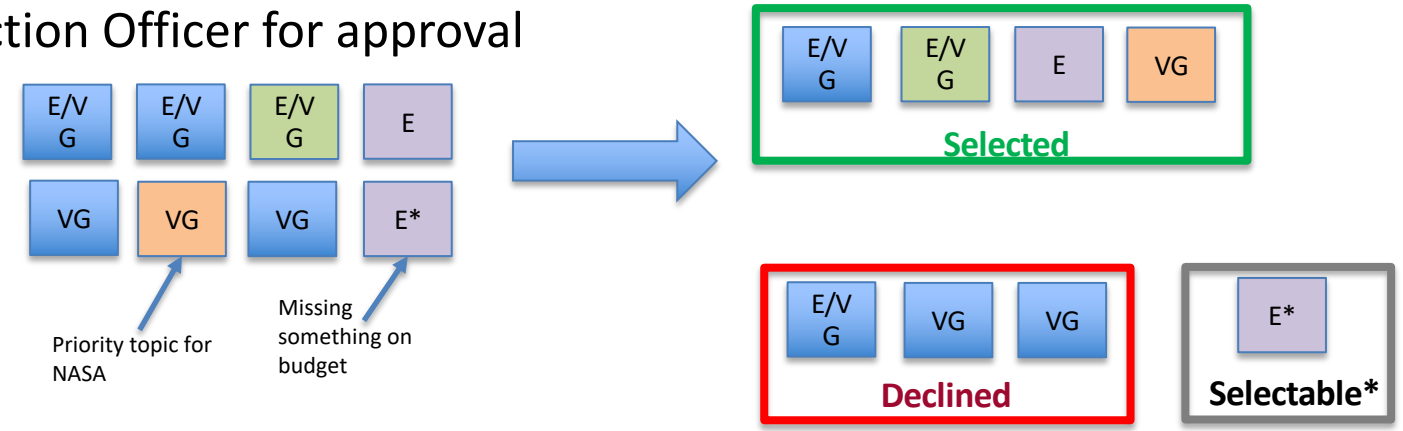
- Volunteer for Review Panels for NASA ROSES http://science.nasa.gov/researchers/volunteer-review-panels/
  - Please respond as soon as possible
  - If you can't travel, let us know that you would be willing to be a virtual panelist
  - Offer to serve as an external if needed
- Participating in a review, whether in person, virtually, as an external reviewer, or executive secretary is confidential

Selections & Programmatic Balance

After the Peer Review: What does the Program Officer Do?

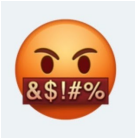
- Program Officer integrates findings of panel with programmatic and budgetary considerations
  - Program balance is an important factor
  - Budgets and time commitments are reviewed

- Program Officer formulates list of recommended selections and submits to Selection Officer for approval

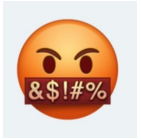


Suggestions:
When you are Selected

- Serve on a review panel
- Stay in touch with the Program Officer regarding funding receipt
- Submit your Progress Report on time
- Plan far ahead if you have a critical deadline for receipt of funds
- Invite the Program Officer to your talk/poster
- Send Program Officer copies of papers that came from funding!



Suggestions: When You are not Selected



- If you simply must fire off an email to the Program Officer questioning their intelligence and integrity and that of the review panel, write it and email it to yourself
- Remember that R&A programs are very competitive and you often have to submit multiple times
- After you receive your review, arrange a debrief with the Program Officer to answer any questions
- Contest the review if you feel that major mistakes were made
- Always use the comments from the Review Panel to improve your proposal before proposing again
- Agree/Volunteer to serve on Review Panels
- Check for other funding opportunities.

Combatting Negativity

Combatting Negative Thoughts Within Yourself:

- Talk about the issue with someone you trust
- Ask your friends what they think of you
- Use your own words to influence how you think
- Build alliances
- Own your accomplishments
- Re-orient yourself around your VALUES

Combatting Negative Thoughts Within Others:

- Encourage people
- Discourage hostility and bickering
- As a leader, show your own uncertainties & demonstrate your own learning process
- Reward and encourage people in your group for mentoring others
- Don’t make it personal when someone’s work needs improvement.

Activity 3: Values Exercise

Courtesy of SMARTORG

Exercise adapted from:
http://adainitiative.org

When you think of the times in your life when you've been the happiest, the proudest, or the most satisfied, which of the following come to mind?

- Accomplishment
- Accountability
- Achievement
- Action
- Activism
- Adventure
- Affection
- Ambition
- Autonomy
- Challenge
- Close relationships
- Commitment
- Community
- Compassion
- Competence
- Competition
- Confidence
- Conformity
- Control
- Coolness under fire
- Cooperation
- Courage
- Creativity
- Credibility
- Decisiveness
- Desires
- Economic security
- Fame
- Family
- Foresight
- Free time
- Freedom
- Friendships
- Growth
- Happiness
- Health
- Helping other people
- Helping society
- Honesty
- Hospitality
- Independence
- Influence
- Inner harmony
- Insight
- Inspiration
- Integrity
- Intellectual status
- Introspection
- Justice
- Knowledge
- Leadership
- Location
- Love
- Loyalty
- Order
- Patriotism
- Peace
- Persistence
- Personal development
- Physical challenge
- Pleasure
- Power and authority
- Privacy
- Public service
- Purity
- Quality
- Recognition
- Reputation
- Responsibility
- Romance
- Security
- Self-knowledge
- Self-reliance
- Self-respect
- Serenity
- Sophistication
- Spirituality
- Stability
- Status
- Tenacity
- Tranquility
- Effectiveness
- Efficiency
- Enthusiasm
- Environmentalism
- Excellence
- Excitement
- Fairness
- Faith
- Meaningful work
- Mentorship
- Merit
- Money
- Movement
- Music
- Nature
- Openness
- Truth
- Vibrancy
- Volunteering
- Wealth
- Will-power
- Wisdom

[add any that are missing]

Values

- In general, do you try to live up to the values you came up with?
- Why are these values important to you? Reflect.

Courtesy of SMARTORG

When you think of your career as a scientist, researcher, or educator, which values come to mind?

- Accomplishment
- Accountability
- Achievement
- Action
- Activism
- Adventure
- Affection
- Ambition
- Autonomy
- Challenge
- Close relationships
- Commitment
- Community
- Compassion
- Competence
- Competition
- Confidence
- Conformity
- Control
- Coolness under fire
- Cooperation
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- Reputation
- Responsibility
- Romance
- Security
- Self-knowledge
- Self-reliance
- Self-respect
- Serenity
- Sophistication
- Spirituality
- Stability
- Status
- Tenacity
- Tranquility
- Effectiveness
- Efficiency
- Enthusiasm
- Environmentalism
- Excellence
- Excitement
- Fairness
- Faith
- Meaningful work
- Mentorship
- Merit
- Money
- Movement
- Music
- Nature
- Openness
- Truth
- Vibrancy
- Volunteering
- Wealth
- Will-power
- Wisdom

[add any that are missing]

Activity: Values Exercise

Courtesy of SMARTORG

Exercise adapted from:
http://adainitiative.org

Wrapping Up

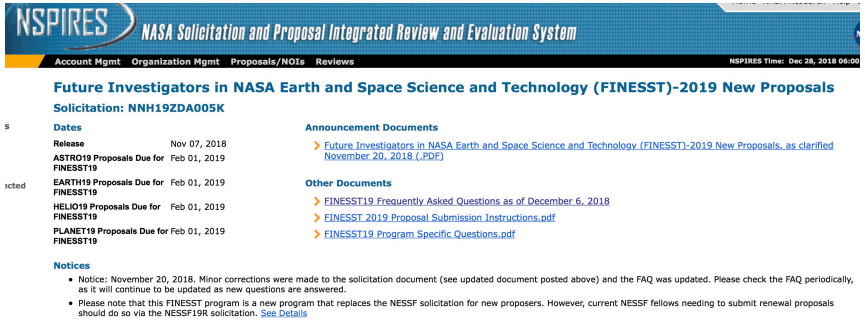
If You Remember Nothing Else, Remember This

- The opportunities are available: find them, learn them, make them yours
- Follow the Guidebook for Proposers and read the NRA for the program
- Your job is to make it as easy as possible for your two audiences to select your proposal
- Think before writing, critique before submitting
- It is never too early to start gaining proposal experience
- Networking really is a critical part of career: get your name out there in positive ways!
- Remember your VALUES!

Career Development Programs

Future Investigators in NASA Earth and Space Science and Technology (FINESST)

- Replaces the NESSF Program
- Meant to fund Graduate Students for up to $45k/year for up to 3 years


NSPIRES NASA Solicitation and Proposal Integrated Review and Evaluation System

Account Mgmt Organization Mgmt Proposals/NOIs Reviews NSPIRES Time: Dec 28, 2018 06:00

Future Investigators in NASA Earth and Space Science and Technology (FINESST)-2019 New Proposals

Solicitation: NNH19ZDA005K

Dates

Release	Nov 07, 2018
ASTRO19 Proposals Due for FINESST19	Feb 01, 2019
EARTH19 Proposals Due for FINESST19	Feb 01, 2019
HELIO19 Proposals Due for FINESST19	Feb 01, 2019
PLANET19 Proposals Due for FINESST19	Feb 01, 2019

Announcement Documents

- Future Investigators in NASA Earth and Space Science and Technology (FINESST)-2019 New Proposals, as clarified November 20, 2018 (.PDF)

Other Documents

- FINESST19 Frequently Asked Questions as of December 6, 2018
- FINESST 2019 Proposal Submission Instructions.pdf
- FINESST19 Program Specific Questions.pdf

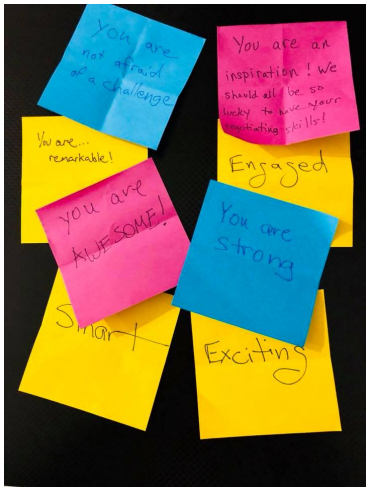
Notices

- Notice: November 20, 2018. Minor corrections were made to the solicitation document (see updated document posted above) and the FAQ was updated. Please check the FAQ periodically, as it will continue to be updated as new questions are answered.
- Please note that this FINESST program is a new program that replaces the NESSF solicitation for new proposers. However, current NESSF fellows needing to submit renewal proposals should do so via the NESSF19R solicitation. See Details

NASA Postdoctoral Program (http://npp.usra.edu)

- Provides NASA Centers with the responsibility to identify candidate postdoctoral opportunities that meet one or more of the following objectives:
  a. conduct cutting edge scientific research consistent with NASA's and SMD's strategic objectives
  b. recruit the finest early career scientists for short-term, focused research opportunities
  c. infuse new skills into, and revitalize, both new and existing research groups

THANK YOU: Paul Propster (and everyone at The Foundry), Rob Hannah, and the fine folks at NASA who support this workshop through the TWSC Program! Also, thank you to each of you for taking this workshop today!



How Your Money Gets to You

(FY19 as an example)